



W. L. GARMAN

TESTING SOIL

for Lime Needs

SOIL testing for lime needs is not a difficult job. Anyone who is reasonably careful and not color blind can do the job in a few minutes. Since there is usually some variation in lime need from one location to another, it is best to make the tests while walking over the field.

The Cornell pH Test Kit may be obtained from your county agricultural agent or from the Department of

Agronomy, Cornell University, Ithaca, New York.

Tools Required

Few tools are needed to make the test. These are: the soil test kit, which contains indicator solutions, spot plate, and color chart, and a shovel or some other device for digging the soil samples. Some are shown in the illustration below.



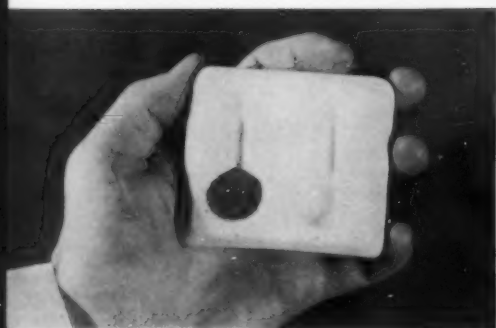
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Here's How to test



The Cornell pH Test Kit contains two indicator, or dye solutions, a porcelain spot plate, a color chart, and instructions.

The indicator dyes come in plastic bottles and remain in good condition as long as they are not continuously exposed to direct sunlight. The *Chloro-Phenol Red* indicator is most sensitive in the strongly and moderately acid ranges (pH 5.0 to 6.0). The *Brom-Thymol Blue* is most sensitive in the slightly acid to neutral range (pH 6.0 to 7.0).



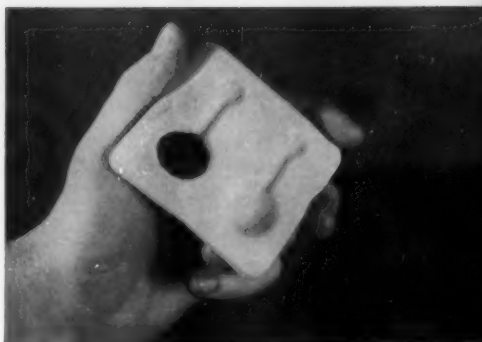
Fill the large "well" in the spot plate from one-half to two-thirds full of dry to moist soil. Soil can be tested any time the ground is dry enough to work.



Add the indicator solution slowly—*drop by drop*—until the soil is just saturated or until some of the solution can be seen between the soil particles. *Do not flood the soil.* This will result in an inaccurate test, especially on sandy soils.

to test YOUR Soil

When the indicator solution has been added, rotate or tip the spot plate from side to side for one minute. This allows the indicator to react with the soil. Tapping the spot plate gently on one side hastens the reaction.



After the indicator has been allowed to complete its reaction with the soil, incline the spot plate at an angle so that a drop of the *reacted* indicator will flow from the soil and into the small channel. A clean graphite pencil point or knife blade may be used to help separate a drop of the indicator from the soil. If the instrument used is not clean, a change in color can be noted at the point of contact.



Hold the spot plate level with the ground and compare the color of the reacted indicator with the color chart for the indicator used.

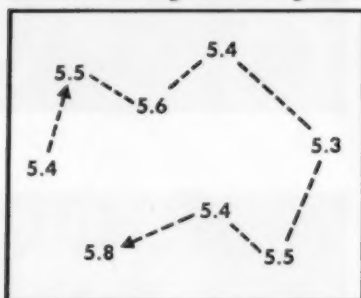
Adjacent to each color on the chart is the pH and degree of acidity of the soil tested. If the color is too high or too low for the indicator used, re-test with the other indicator solution.

Determine the amount of lime needed from the chart on page 4.



Where and How to Take Samples

Test the soil in several locations in each field. Write the results down on a piece of paper for later reference. A good plan is to draw a sketch of the field as illustrated in the diagram below and to write in the pH at each site tested. Average the readings and,



from the table on this page, determine the lime required to neutralize the soil acids.

Caution

Take samples that are representative of the soil in the field. Stay away from fence rows, animal manures, old straw or hay stacks, animal feeding areas, or freshly applied commercial fertilizers and the like.

Amount of Lime Needed

The lime need varies with the texture of the soil and the degree of acidity. The greater the amount of fine clay particles and the more acid the soil is, the larger the lime requirement will be.

Lime Required to Raise the pH of the Plow Layer to 6.5

Texture		Slightly acid (6.0 to 6.5)	Moderately acid (5.5 to 6.0)	Strongly acid (less than 5.5)
		Tons of lime per acre needed		
Coarse	sands	½ to 1	1 to 2	2 to 3
	loamy sand			
	light sandy loams			
Medium	loams	1 to 2	2 to 3	3 to 6
	silt loams			
Fine	silty clay loams	2 to 3	3 to 6	6 or more
	clay loams			

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